C-4

DEPARTMENT OF THE NAVY
PUGET SOUND NAVAL SHIPYARD
AND INTERMEDIATE MAINTENANCE FACILITY
1400 FARRAGUT AVENUE
BREMERTON, WASHINGTON 98314-5001

IN REPLY REFER TO

5090
Ser 106.32/0131
MAY 30 2013

Mr. Chae Park
US EPA - Region 10
NPDES Compliance Unit OCE-133
1200 Sixth Avenue, Suite 900
Seattle, WA 98101

Dear Mr. Park:

This letter provides Puget Sound Naval Shipyard and Intermediate Maintenance Facility's (PSNS & IMF's) first semi-annual status report required by 2013 Federal Facilities Compliance Agreement (FFCA) Environmental Protection Agency (EPA) Docket No. CWA-10-2013-0045 of April 4, 2013. The report is attached.

PSNS & IMF requests EPA concurrence pursuant to paragraph 20 of the FFCA on completion of:

a. FFCA Item 13.d, and

b. FFCA Item 13.h submittal of the amended Preventative Maintenance Instruction (PMI) for the Process Water Collection System (PWCS), establishment of the inspection schedule to the amended PMI, and ensuring a maintenance/repair/replace procedure is in place.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person who manages the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment for knowing violations.

5090
Ser 106.32/0131

MAY 30 2013

Questions or comments regarding this information may be addressed to Mr. Larry Hsu, Code 106.32, at (360) 476-4738.

Sincerely,

S. E. McKEE
Head, Environmental Division
Environmental, Safety, and
Health Office
By direction of the Commander

Enclosures:
1. 2013 Federal Facilities Compliance Agreement (FFCA) EPA Docket No. CWA-10-2013-0045 Semi-annual Report
2. Authorizations and Uses of Copper-Free Anti-Fouling Paints
3. Preventative Maintenance Instruction (Excerpt) Process Water Collection System Periodic Inspection For Dry Dock 1 (Revision)
4. Preventative Maintenance Instruction (Excerpt) Process Water Collection System Periodic Inspection For Dry Dock 2 (Revision)
5. Preventative Maintenance Instruction (Excerpt) Process Water Collection System Periodic Inspection For Dry Dock 3 (Revision)
6. Preventative Maintenance Instruction (Excerpt) Process Water Collection System Periodic Inspection For Dry Dock 4 (Revision)
7. Preventative Maintenance Instruction (Excerpt) Process Water Collection System Periodic Inspection For Dry Dock 5 (Revision)
8. Preventative Maintenance Instruction (Excerpt) Process Water Collection System Periodic Inspection For Dry Dock 6 (Revision)

2013 FEDERAL FACILITIES COMPLIANCE AGREEMENT (FFCA) EPA DOCKET NO. CWA-10-2013-0045 SEMI-ANNUAL REPORT

Enclosure (1)

PSNS&IMF FFCA SEMI-ANNUAL STATUS REPORT
EPA DOCKET NO. CWA-10-2013-0045

This report provides status of actions prescribed by FFCA EPA Docket Number CWA-10-2013-0045 as follows:

FFCA Item 13.a:

PSNS&IMF has replaced all time delay sample turbidity meters for all Dry Docks (Dry Docks 1 through 6) with continuous real time turbidity readers. See Table I below for dates of completion for replacement of turbidity meters.

Table I: Turbidity Meter Replacement

Dry Dock	Work Order Number	Completion Date
1	305433	3/26/2008
2	294591	6/9/2008
3	270615	2/27/2006
4	307260	6/17/2009
5	309632	3/4/2008
6	307261	7/1/2009

For the month of April since the effective date of this FFCA, the turbidity meters for all Dry Docks were set at 0 NTU and all process water was routed to the sewer system except as follows:

1. With Dry Dock 6 Military Construction Project (MILCON) P-419 in progress to upgrade the Process Water Collection System (PWCS) to increase the capacity to send process water to the sewer, the PWCS in Dry Dock 6 is out of service and all process water has and is being sent to the bay (with no project in dock creating industrial debris) via outfall 019 until the new PWCS modifications are complete and the PWCS is back on line.

2. For Dry Docks 1 through 5, all process water was discharged to the sewer (turbidity meter set at 0 NTU) except on three occasions when the sewer allotment was exceeded, and when the PWCS was secured for maintenance (generally scheduled during off hours and for short duration usually between 4-8 hours).

Information for May through October will be provided in the next semi-annual status report due November 30, 2013.

FFCA Item 13.b:

Turbidity meters for all Dry Docks (Dry Docks 1 through 6) have been calibrated within 12 months of this report. Table II below provides the dates of calibration for all turbidity meters:

Table II: Turbidity Meter Calibration

Dry Dock	Turbidity Meter Calibration Completion Date
1	2/12/2013
2	9/28/12
3	9/28/12
4	9/28/12
5	9/28/12
6	9/28/12

FFCA Item 13.c:

One project at PSNS, the USS Michigan (SSGN-727) completed within 30 days after the effective date of this FFCA on May 15, 2013 from Dry Dock 5. Cleaning of the Dry Dock was completed on May 20, 2013 and cleaning of the process water tank was performed on May 23, 2013.

Although not following a "project" and therefore not required by this FFCA, PSNS&IMF has recently cleaned the following process water tanks: 1. Process water tank for Dry Dock 5 on December 6, 2012 cleaned prior to docking of the USS Michigan in December 2012, and 2. Process water tank for Dry Dock 6 on February 22, 2013 after the February undocking of the USS Seawolf (SSN 21).

FFCA Item 13.d:

Puget Sound Naval Shipyard and Intermediate Maintenance Facility (PSNS&IMF) has been using copper-free paint since June 2009 on those submarine projects meeting the approval criteria set by NAVSEA. PSNS&IMF intends to continue to do so and has also been proactive in the evaluation of copper-free paint for longer service life applications.

Enclosure 2 discusses preservation requirements and the use of copper-free paint and includes identification of documents which provide authorization, factors which affect its use, and efforts made to evaluate copper-free paint for longer service life applications.

This item is deemed **complete** and submitted for EPA concurrence pursuant to paragraph 20 of the FFCA.

FFCA Item 13.e:

Military Construction (MILCON) Project P-419 to upgrade the infrastructure of Dry Dock 6 to enable PSNS&IMF to send water on the floor of the dock to the Oily Waste Treatment System (OWTS) for treatment based on turbidity levels is in progress and is estimated as 70% complete.

FFCA Item 13.f:

Funding for Military Construction (MILCON) Projects P-420 and P-422 to upgrade the infrastructures of Dry Docks 1 through 5 to enable PSNS&IMF to send water on the floor of the dock to the Oily Waste Treatment System (OWTS) for treatment based on turbidity levels has been requested by PSNS&IMF. Changes in status of the funding and approval will be provided in future reports.

FFCA Item 13.g:

Inspection of process water collection system lines in all dry docks will be performed no later than 90 days after April 4, 2013, the effective date of this FFCA. Documentation of completion of this inspection will be provided in the next semi-annual status report.

FFCA Item 13.h:

The preventive maintenance instructions (PMI) for the PWCS have been amended to ensure the instructions apply to PWCS piping in addition to associated valves and piping. The revisions to the PMIs can be seen in enclosures (3) through (8) for Dry Docks 1 through 6, respectively. A maintenance/repair/replace procedure is in place for all PWCS lines.

Submittal of the amended PMI for the PWCS, establishment of the inspection schedule to the amended PMI, and ensuring a maintenance/repair/replace procedure is in place are deemed **complete** and submitted for EPA concurrence pursuant to paragraph 20 of the FFCA.

AUTHORIZATIONS AND USES OF COPPER-FREE ANTI-FOULING PAINTS

Enclosure (2)

REFERENCES

(a) 009-32: Cleaning and Painting Requirements, Accomplish, FY-13

(b) Performance Specification MIL-PRF-24647 D with Amendment 1: Paint System, Anticorrosive and Antifouling, Ship Hull

(c) QPL-24647: Qualified Product List of Products Qualified Under Performance Specification MIL-PRF-24647 Paint System, Anticorrosive and Antifouling, Ship Hull

(d) ASTM F-718 sheet for Sherwin Williams SeaVoyage Copper-Free Anti-Fouling (aka SeaGuard Heavy Metal Free Antifoulant)

(e) ASTM F-718 sheet for PPG Protective and Marine Coatings ABC #3 Ablative Antifouling Coating

(f) ASTM F-718 sheet for PPG-Ameron Amercoat 235

(g) ASTM F-718 sheet for Sherwin Williams SeaGuard 5000 HS

Summary. Puget Sound Naval Shipyard and Intermediate Maintenance Facility (PSNS&IMF) has been using copper-free paint on submarines since June 2009 for those submarines for which approval has been given via NAVSEA approved documents, and whenever environmental conditions and time restraints allow. PSNS&IMF intends to continue to do so and has also been proactive in the evaluation of copper-free paint for longer service life applications.

1. Purpose. This paper discusses preservation requirements and the use of copper-free paint on submarines. This includes identification of documents which provide authorization for the use of copper-free paint and the factors which affect the use of copper-free paint.

2. Background.

(a) PSNS & IMF performs maintenance on several classes of submarine (SSN 688, SSN 21, SSGN 726, SSBN 726).

(b) Work at PSNS & IMF is performed in accordance with several NAVSEA approved documents (such as references (a), (b) and (c)). Additionally, the customer (the person responsible for the ship) can mandate further requirements.

(c) Most paint procured for PSNS & IMF is through Corporate Just-In-Time contracts. Current contracts are with PPG

Industries, Inc. (Contract No. N00189-10-D-0007) and The Sherwin-Williams Company (Contract No. N00189-10-D-0006).

3. Requirements.

(a) Reference (b) defines MIL-PRF-24647 Type I and Type II as the following:

Type I - Paint systems having topcoats that contain biocide(s) other than copper which ablate or self-polish.

Type II - Paint systems having topcoats that contain biocide(s) (copper or other biocide not cited in Type I) which ablate or self-polish.

(b) Reference (b) defines MIL-PRF-24647 Class 1 and Class 3 as the following:

Class 1 - Paint systems for use on rigid, fiberglass, wood or metallic substrates, other than aluminum.

Class 3 - Paint systems for use on elastomeric substrates.

(c) Reference (b) defines MIL-PRF-24647 Applications 1, 2 and 3 as the following:

Application 1 - Paint systems for use on the underwater hull, with a service life of three years.

Application 2 - Paint systems for use on the underwater hull, with a service life of seven years.

Application 3 - Paint systems for use on the underwater hull, with a service life of twelve years.

(d) Reference (c) has two coatings qualified to Type I [copper free]:

(1) Sherwin Williams SeaVoyage copper-free anti-fouling, used with SeaGuard 5000 HS anti-corrosive.

(2) International Interspeed 5640 anti-fouling, used with Intertuf 262 anti-corrosive or InterGard 264 anti-corrosive.

(3) These two Type I coatings are qualified to Class 1 (metallic substrates other than aluminum) and Application 1 (service life of three years).

(e) SSBN 726/SSGN 726: Table 6 Line 1 of reference (a) calls out the preservation requirements for submarines, exterior surfaces (not covered by SHT) from the keel to the upper boottop. Anti-fouling coatings qualified to MIL-PRF-24647, Type I or II, Class 1 are required.

(f) SSN 688/SSN 21: Table 6 Lines 8 and 9 of reference (a) call out the preservation requirements for submarines, exterior surfaces covered by SHT tiles (SSN 688, 21 and 774 classes) from the keel to upper boottop. Anti-fouling coatings qualified to MIL-PRF-24647 Type I Class 3 are required.

(g) Per reference (c), there are no coatings currently qualified to MIL-PRF-24647 Type I (copper-free) and Class 3 (for use on elastomeric substrates).

4. Other Factors Which Affect the Use of Copper-Free Paint.

(a) Length of Service between Availabilities.

(1) Anti-fouling can only be replaced or repaired during a dry-dock availability.

(2) Currently, only SSGN and SSBN submarines have dry-dock availabilities regularly scheduled every three years or less.

(3) PSNS & IMF has been proactive in seeking to extend service life for the copper-free coating as documented on Departure from Specification (DFS) SSBN-733-1018-2009 and DFS SSBN-735-1000-2009. The intent of these DFSs was to document the quality of the anti-fouling and possibly provide evidence that would help qualify the coating for Application 2 (service life of seven years).

(4) DFS SSBN-733-1018-2009 documents the overcoat of the existing preservation system with the copper-free anti-fouling. This DFS has been cleared. The coating did not fare well. Comments on the departure indicate the anti-fouling performed adequately at keeping fouling off the ship, but during the dry-dock period the anti-fouling began to peel off. Observations on future availabilities will determine whether the

use of copper-free anti-fouling must be limited to opportunities where complete coating replacement can be accomplished, or to ships which can support re-application of the copper-free anti-fouling every three years (or less).

(5) SSBN-735-1000-2009 documents the complete replacement of both the anti-corrosive and anti-fouling coatings on the ship using the copper-free system. Bangor will inspect coating next time the ship is in dock and report the condition of the coating system to NAVSEA. NAVSEA will use this information while evaluating an extension to the life of the coating system.

(c) Environmental Conditions.

The SeaGuard 5000 HS/SeaVoyage coating system cannot be applied at as low of temperatures and takes longer to cure to recoat and cure to service than the Amercoat 235/ABC #3 coating system. References (d), (e), (f) and (g) provide temperature requirements, cure to recoat, and cure to service times for these coatings. It is sometimes necessary to use the Amercoat 235/ABC #3 coating system on SSBN/SSGN submarines for late-identified work/repairs so as to not impact undocking (and therefore mission) and when environmental conditions do not support application of the copper-free paint.

(d) Material Contracts.

The Corporate Just-In-Time contracts are used as a tool by Defense Logistics Agency (DLA) to efficiently procure paint material for the Shipyard. The Shipyard requests DLA to procure paint to meet the requirements laid out above, and the Shipyard cannot request a specific manufacturer except in very rare cases.

5. Conclusions.

(a) Per the discussion in paragraph 3.(g), copper-free anti-fouling cannot be used on submarines with SHT tiles (SSN 688, 21 and 774 classes).

(b) As discussed by paragraph 3.(d), currently there are no copper-free anti-fouling coatings qualified to last beyond three years. The only ships that PSNS & IMF maintain which have dry-

dock availabilities every three years or less are the SSGN and SSBN submarines.

(c) As discussed by paragraph 4.(a)(4), some applications of copper-free anti-fouling have not performed well. Future observations of the coating may affect how this coating can be used and will determine whether the three year replacement time frame can be lengthened.

(d) As discussed in paragraph 4.(c), use of copper-free paint is limited by its the longer cure time and application temperature of the copper-free paint in adverse weather conditions.

PREVENTATIVE MAINTENANCE INSTRUCTION (EXCERPT) - PROCESS WATER COLLECTION SYSTEM PERIODIC INSPECTION FOR DRY DOCK 1 (REVISION)

Enclosure (3)

90 PW **Quarterly** #1 Drydock Process Water System Maintenance

(Date last changed, 21 MAY 2013, BLL)

Notes:

a. ONLY perform maintenance on equipment applicable to this work order.
b. Perform assigned inspections and maintenance in accordance with reference (1).
c. If applicable, before commencing work; obtain the proper work outages.
d. DO NOT operate any valves or equipment tagged for nuclear service.
e. The lead W/C supervisor shall be responsible or coordinating ALL crafts that have work to perform on this work order.

A. Process Water System Inspection

Steps 1 through 5 are recording data to facilitate identifying system problems that are not visible/accessible, and steps 6 and 7 are to identify accessible/observable concerns.

1. Record the current and previous weather conditions.

2. While both pumps are off, record the flow into the process water sump from the HMI.

3. Place Process Water system in Hand with both pumps off.

4. With Process Water system in "Hand" and water in the sump, open SV-3 and start pump #1. Record the pumping flow rate from the HMI.

5. With Process Water system in "Hand" and water in the sump, open SV-3 and start pump #2. Record the pumping flow rate from the HMI.

6. Observe both pumps for unusual noises, vibrations, or smells.

7. With Process Water system in "Hand" and water in the sump, open SV-3 and start pump #1 or #2. Visually inspect all accessible Process Water piping and valves. Record any leaks or other observations that may impact future operation of the system (e.g. significant corrosion, broken pipe hangers, etc.).

8. Stop pumps, close SV-3, and return system to "AUTO".

9. Report any problems via Work Order.

B. Process Water Manual Operated Valves

1. Place Process Water system in Hand with both pumps off. Inspect packing if applicable, adjust/add/replace as necessary.

2. Inspect and exercise valves through their entire cycle (if possible) and return to position found. If closing or opening the valve will interrupt a critical service which cannot be interrupted, even for a moment; then partially operate the valve to ensure it is not frozen (i.e., 1 or 2 turns of the hand wheel or operator).

3. With Process Water system in "Hand" and water in the sump, open SV-3 and start pump #1. Inspect overall condition of Process Water valves P-1, and P-3 through P-8 and check for leaks. Tighten or replace packing as necessary.

4. Stop pump # 1 and start pump #2. Inspect overall condition of Process Water valves P-2, and P-4 and check for leaks. Tighten or replace packing as necessary.

5. Stop pump #1, close SV-3 and return system to "AUTO".

6. Inspect and exercise compressed air valves PA-1 through PA-8 through their entire cycle and return to position found. Inspect overall condition of compressed air valves PA-1 through PA-8 and check for leaks. Tighten or replace seals as necessary.

7. Clean and preserve all valves and fasteners as required.

8. Report any problems via Work Order.

C. Filter/Moisture Separator

1. Open drain cock (turn counterclockwise) and drain off any bowl accumulation for filters H-1 and H-2.

2. Inspect overall condition and report any problems via Work Order.

D. Process Water Suction Grate Strainer

1. Inspect the access cover/grate above the PWCS overflow on each side of the dock.

    a. Ensure that the grate edges are not filled with debris that could block water flow into the tunnel.

E. Work Order Submittal

1. Submit a Work Order for any Unacceptable conditions that exist and are beyond the scope of this work order.

If modification of this Job Package is required or recommended, highlight the areas of concern so Engineering and P&E can resolve/update work documents.
Check Here: _____

PWCS INSPECTION FORM

DRY DOCK # 1

The weather is currently:
____ Not raining ____ Light Rain ____ Medium Rain ____ Heavy rain

In the last 2 hours the weather:
____ Did not rain ____ Light Rain ____ Medium Rain ____ Heavy Rain

The flow into the process water sump is: _____ gpm

Pump #	Flow Meter (gpm)

Inspection observations / Work Orders generated:

USRO Signature _____ Date _____

Engineering Review Signature _____ Date _____

PREVENTATIVE MAINTENANCE INSTRUCTION (EXCERPT) - PROCESS WATER COLLECTION SYSTEM PERIODIC INSPECTION FOR DRY DOCK 2(REVISION)

90 PW **Quarterly** #2 Drydock Process Water System Maintenance

(Date last changed, 21 MAY 2013, BLL)

Notes:

a. ONLY perform maintenance on equipment applicable to this work order.
b. Perform assigned inspections and maintenance in accordance with reference (1).
c. If applicable, before commencing work; obtain the proper work outages.
d. DO NOT operate any valves or equipment tagged for nuclear service.
e. The lead W/C supervisor shall be responsible for coordinating ALL crafts that have work to perform on this work order.
f. To access valves in tank, place Process Water in Sewer mode to pump down tank.

A. Process Water System Inspection

Steps 1 through 5 are recording data to facilitate identifying system problems that are not visible/accessible, and steps 6 and 7 are to identify accessible/observable concerns.

1. Record the current and previous weather conditions.

2. While both pumps are off, record the flow into the process water sump from the HMI.

3. Place Process Water system in Hand with both pumps off.

4. With Process Water system in "Hand" and water in the sump, open SV-3 and start pump #1. Record the pumping flow rate from the HMI.

5. With Process Water system in "Hand" and water in the sump, open SV-3 and start pump #2. Record the pumping flow rate from the HMI.

6. Observe both pumps for unusual noises, vibrations, or smells.

7. With Process Water system in "Hand" and water in the sump, open SV-3 and start pump #1 or #2. Visually inspect all accessible Process Water piping and valves. Record any leaks or other observations that may impact future operation of the system (e.g. significant corrosion, broken pipe hangers, etc.).

8. Stop pumps, close SV-3, and return system to "AUTO".

9. Report any problems via Work Order.

B. Process Water Manual Operated Valves.

1. Place Process Water system in Hand with both pumps off. Inspect packing if applicable, adjust/add/replace as necessary.

2. Inspect and exercise valves through their entire cycle (if possible) and return to position found. If closing or opening the valve will interrupt a critical service which cannot be interrupted, even for a moment; then partially operate the valve to ensure it is not frozen (i.e., 1 or 2 turns of the hand wheel or operator).

3. With Process Water system in "Hand" and water in the sump, open V-2 and start pump #2. Inspect overall condition of Process Water valves P-2, and P-4 through P-8 and check for leaks. Tighten or replace packing as necessary.

4. Stop pump # 2 and start pump #1. Inspect overall condition of Process Water valves P-1, and P-3 and check for leaks. Tighten or replace packing as necessary.

5. Stop pump #1, close V-2 and return system to "AUTO".

6. Inspect and exercise compressed air valves PA-1 through PA-8 through their entire cycle and return to position found. Inspect overall condition of compressed air valves PA-1 through PA-8 and check for leaks. Tighten or replace seals as necessary.

7. Clean and preserve all valves and fasteners as required.

8. Return valves to original position.

9. Report any problems via Work Order.

C. Filter/Moisture Separator.

1. Open drain cock (turn counterclockwise) and drain off any bowl accumulation.

2. Inspect overall condition and report any problems via Work Order.

D. Process Water Suction Grate Strainer

1. Inspect the access cover/grate above the PWCS overflow on each side of the dock.

    a. Ensure that the grate edges are not filled with debris that could block water flow into the tunnel.

E. Work Order Submittal

1. Submit a Work Order for any Unacceptable conditions that exist and are beyond the scope of this work order.

If modification of this Job Package is required or recommended, highlight the areas of concern so Engineering and P&E can resolve/update work documents.
Check Here: _____

PWCS INSPECTION FORM

DRY DOCK # 2

The weather is currently:
____ Not raining ____ Light Rain ____ Medium Rain ____ Heavy rain

In the last 2 hours the weather:
____ Did not rain ____ Light Rain ____ Medium Rain ____ Heavy Rain

The flow into the process water sump is: _____ gpm

Pump #	Flow Meter (gpm)

Inspection observations / Work Orders generated:

USRO Signature _____ Date _____

Engineering Review Signature _____ Date _____

PREVENTATIVE MAINTENANCE INSTRUCTION (EXCERPT) - PROCESS WATER COLLECTION SYSTEM PERIODIC INSPECTION FOR DRY DOCK 3(REVISION)

90 PW **Quarterly** #3 Drydock Process Water System Maintenance

(Date last changed, 21 MAY 2013, BLL)

Notes:

a. ONLY perform maintenance on equipment applicable to this work order.
b. Perform assigned inspections and maintenance in accordance with reference (1).
c. If applicable, before commencing work; obtain the proper work outages.
d. DO NOT operate any valves or equipment tagged for nuclear service.
e. The lead W/C supervisor shall be responsible or coordinating ALL crafts that have work to perform on this work order.

A. Process Water System Inspection

Steps 1 through 5 are recording data to facilitate identifying system problems that are not visible/accessible, and steps 6 and 7 are to identify accessible/observable concerns.

1. Record the current and previous weather conditions.

2. While both pumps are off, record the flow into the process water sump from the HMI.

3. Place Process Water system in Hand with both pumps off.

4. With Process Water system in "Hand" and water in the sump, open SV-3 and start pump #1. Record the pumping flow rate from the HMI.

5. With Process Water system in "Hand" and water in the sump, open SV-3 and start pump #2. Record the pumping flow rate from the HMI.

6. Observe both pumps for unusual noises, vibrations, or smells.

7. With Process Water system in "Hand" and water in the sump, open SV-3 and start pump #1 or #2. Visually inspect all accessible Process Water piping and valves. Record any leaks or other observations that may impact future operation of the system (e.g. significant corrosion, broken pipe hangers, etc.).

8. Stop pumps, close SV-3, and return system to "AUTO".

9. Report any problems via Work Order.

A. Processed Water Manual Operated Valves

1. Place Process Water system in Hand with both pumps off. Inspect and exercise Process Water valves P-1 through P-8 through their entire cycle and return to position found. See attached sketches for valve identification.

2. With Process Water system in "Hand" and water in the well, open SV-2 and start pump #1. Inspect overall condition of Process Water valves P-1, P-3, P-4, and P-6 through P-8 and check for leaks. Tighten or replace packing as necessary.

3. Stop pump # 1 and start pump #2. Inspect overall condition of Process Water valve P-2 and check for leaks. Tighten or replace packing as necessary.

4. Stop pump #2, close SV-2 and return system to "AUTO".

5. Inspect and exercise compressed air valves A-1 through A-14 through their entire cycle and return to position found. Inspect overall condition of compressed air valves A-1 through A-14 and check for leaks. Tighten or replace seals as necessary.

6. Clean and preserve all the above valves and fasteners as required.

7. Report any problems via Work Order.

B. Filter/Moisture Separator

1. Open drain cock (turn counterclockwise) and drain off any bowl accumulation for filter H.

2. Inspect overall condition and report any problems via Work Order.

E. Work Order Submittal

1. Submit a Work Order for any Unacceptable conditions that exist and are beyond the scope of this work order.

If modification of this Job Package is required or recommended, highlight the areas of concern so Engineering and P&E can resolve/update work documents.
Check Here: _____

PWCS INSPECTION FORM

DRY DOCK # 3

The weather is currently:
____ Not raining ____ Light Rain ____ Medium Rain ____ Heavy rain

In the last 2 hours the weather:
____ Did not rain ____ Light Rain ____ Medium Rain ____ Heavy Rain

The flow into the process water sump is: _____ gpm

Pump #	Flow Meter (gpm)

Inspection observations / Work Orders generated:

USRO Signature _____ Date _____

Engineering Review Signature _____ Date _____

PREVENTATIVE MAINTENANCE INSTRUCTION (EXCERPT) - PROCESS WATER COLLECTION SYSTEM PERIODIC INSPECTION FOR DRY DOCK 4 (REVISION)

90 PW **Quarterly** #4 Drydock Process Water System Maintenance

(Date last changed, 21 MAY 2013, BLL)

Notes:

a. ONLY perform maintenance on equipment applicable to this work order.
b. Perform assigned inspections and maintenance in accordance with reference (1).
c. If applicable, before commencing work; obtain the proper work outages.
d. DO NOT operate any valves or equipment tagged for nuclear service.
e. The lead W/C supervisor shall be responsible or coordinating ALL crafts that have work to perform on this work order.

A. Process Water System Inspection

Steps 1 through 5 are recording data to facilitate identifying system problems that are not visible/accessible, and steps 6 and 7 are to identify accessible/observable concerns.

1. Record the current and previous weather conditions.

2. While both pumps are off, record the flow into the process water sump from the HMI.

3. Place Process Water system in Hand with both pumps off.

4. With Process Water system in "Hand" and water in the sump, open SV-3 and start pump #1. Record the pumping flow rate from the HMI.

5. With Process Water system in "Hand" and water in the sump, open SV-3 and start pump #2. Record the pumping flow rate from the HMI.

6. Observe both pumps for unusual noises, vibrations, or smells.

7. With Process Water system in "Hand" and water in the sump, open SV-3 and start pump #1 or #2. Visually inspect all accessible Process Water piping and valves. Record any leaks or other observations that may impact future operation of the system (e.g. significant corrosion, broken pipe hangers, etc.).

8. Stop pumps, close SV-3, and return system to "AUTO".

9. Report any problems via Work Order.

A. Processed Water Manual Operated Valves

1. Place Process Water system in Hand with both pumps off. Inspect and exercise Process Water valves P-1, P-3, P-2, P-4, P-6, M and S through their entire cycle and return to position found. See attached sketches for valve identification.

2. With Process Water system in "Hand" and water in the well, start pump #1. Inspect overall condition of Process Water valves P-1, P-3, and M and check for leaks. Tighten or replace packing as necessary.

3. Stop pump # 1 and start pump #2. Inspect overall condition of Process Water valves P-2 and P-4 and check for leaks. Tighten or replace packing as necessary.

4. Stop pump #2 and return system to "AUTO".

5. Inspect and exercise compressed air valves AP-1 through AP-17 through their entire cycle and return to position found. Inspect overall condition of compressed air valves AP-1 through AP-17 and check for leaks. Tighten or replace seals as necessary.

6. Clean and preserve all the above valves and fasteners as required.

7. Report any problems via Work Order.

B. Filter/Moisture Separator

1. Open drain cock (turn counterclockwise) and drain off any bowl accumulation for filter H-1.

2. Inspect overall condition and report any problems via Work Order.

C. Process Water Suction Grate Strainer

1. Remove the access cover/grate above the PWCS suction strainer.

   a. Remove the suction strainer basket.

   b. Brush the debris from inside and outside of the strainer basket.

   c. Scoop out any remaining debris from the basket seat, and replace the basket.

   d. Replace the access cover/grate.

   e. Remove the debris from the Drydock.

D. Work Order Submittal

1. Submit a Work Order for any Unacceptable conditions that exist and are beyond the scope of this work order.

If modification of this Job Package is required or recommended, highlight the areas of concern so Engineering and P&E can resolve/update work documents.
Check Here: _____

PWCS INSPECTION FORM

DRY DOCK # 4

The weather is currently:
____ Not raining ____ Light Rain ____ Medium Rain ____ Heavy rain

In the last 2 hours the weather:
____ Did not rain ____ Light Rain ____ Medium Rain ____ Heavy Rain

The flow into the process water sump is: _____ gpm

Pump #	Flow Meter (gpm)

Inspection observations / Work Orders generated:

USRO Signature _____ Date _____

Engineering Review Signature _____ Date _____

PREVENTATIVE MAINTENANCE INSTRUCTION (EXCERPT) - PROCESS WATER COLLECTION SYSTEM PERIODIC INSPECTION FOR DRY DOCK 5(REVISION)

90 PW **Quarterly** #5 Drydock Process Water System Maintenance

(Date last changed, 21 MAY 2013, BLL)

Notes:

a. ONLY perform maintenance on equipment applicable to this work order.
b. Perform assigned inspections and maintenance in accordance with reference (1).
c. If applicable, before commencing work; obtain the proper work outages.
d. DO NOT operate any valves or equipment tagged for nuclear service.
e. The lead W/C supervisor shall be responsible or coordinating ALL crafts that have work to perform on this work order.

A. Process Water System Inspection

Steps 1 through 5 are recording data to facilitate identifying system problems that are not visible/accessible, and steps 6 and 7 are to identify accessible/observable concerns.

1. Record the current and previous weather conditions.

2. While both pumps are off, record the flow into the process water sump from the HMI.

3. Place Process Water system in Hand with both pumps off.

4. With Process Water system in "Hand" and water in the sump, open SV-3 and start pump #1. Record the pumping flow rate from the HMI.

5. With Process Water system in "Hand" and water in the sump, open SV-3 and start pump #2. Record the pumping flow rate from the HMI.

6. Observe both pumps for unusual noises, vibrations, or smells.

7. With Process Water system in "Hand" and water in the sump, open SV-3 and start pump #1 or #2. Visually inspect all accessible Process Water piping and valves. Record any leaks or other observations that may impact future operation of the system (e.g. significant corrosion, broken pipe hangers, etc.).

8. Stop pumps, close SV-3, and return system to "AUTO".

9. Report any problems via Work Order.

B. Processed Water Manual Operated Valves

1. Place Process Water system in Hand with both pumps off. Inspect and exercise Process Water valves P-1, P-3, P-2, P-4, N, P, Q and R through their entire cycle and return to position found. See attached sketches for valve identification.

2. Place Process Water system in "Hand", open V-2 and when there is enough water in the TANK, start pump #1. Inspect overall condition of Process Water valves P-1, P-3, and P and check for leaks. Tighten or replace packing as necessary.

3. Stop pump # 1, close V-2 and open V-3 and when there is enough water in the TANK, start pump #2. Inspect overall condition of Process Water valves P-2, P-4, and N and check for leaks. Tighten or replace packing as necessary.

4. Stop pump #2 and return system to "AUTO".

5. Inspect and exercise compressed air valves AP-1 through AP-7 and AP-22 through AP-31 through their entire cycles and return to positions found. Inspect overall condition of compressed air valves AP-1 through AP-7 and AP-22 through AP-31 and check for leaks. Tighten or replace seals as necessary.

6. Clean and preserve all the above valves and fasteners as required.

7. Report any problems via Work Order.

C. Filter/Moisture Separator

1. Open drain cock (turn counterclockwise) and drain off any bowl accumulation for filter H.

2. Inspect overall condition and report any problems via Work Order.

D. Work Order Submittal

1. Submit a Work Order for any Unacceptable conditions that exist and are beyond the scope of this work order.

If modification of this Job Package is required or recommended, highlight the areas of concern so Engineering and P&E can resolve/update work documents.
Check Here: _____

PWCS INSPECTION FORM

DRY DOCK # 5

The weather is currently:
____ Not raining ____ Light Rain ____ Medium Rain ____ Heavy rain

In the last 2 hours the weather:
____ Did not rain ____ Light Rain ____ Medium Rain ____ Heavy Rain

The flow into the process water sump is: _____ gpm

Pump #	Flow Meter (gpm)

Inspection observations / Work Orders generated:

USRO Signature _____ Date _____

Engineering Review Signature _____ Date _____

PREVENTATIVE MAINTENANCE INSTRUCTION (EXCERPT) - PROCESS WATER COLLECTION SYSTEM PERIODIC INSPECTION FOR DRY DOCK 6(REVISION)

90 PW **Quarterly** #6 Drydock Process Water System Maintenance

(Date last changed, 21 MAY 2013, BLL)

Notes:

a. ONLY perform maintenance on equipment applicable to this work order.
b. Perform assigned inspections and maintenance in accordance with reference (1).
c. If applicable, before commencing work; obtain proper work outages.
d. DO NOT operate any valves or equipment tagged for nuclear service.
e. The lead W/C supervisor shall be responsible or coordinating ALL crafts that have work to perform on this work order.

A. Process Water System Inspection

Steps 1 through 5 are recording data to facilitate identifying system problems that are not visible/accessible, and steps 6 and 7 are to identify accessible/observable concerns.

1. Record the current and previous weather conditions.

2. While both pumps are off, record the flow into the process water sump from the HMI.

3. Place the hand switch for both Process Water pumps in the OFF position.

4. With both pumps off and water in the sump, open SV-3 and start pump #1 at 50% speed. Record the pumping flow rate from the HMI.

5. With both pumps off and water in the sump, open SV-3 and start pump #2 at 50% speed. Record the pumping flow rate from the HMI.

6. Observe both pumps for unusual noises, vibrations, or smells.

7. With both pumps off and water in the sump, open SV-3 and start pump #1 or #2. Visually inspect all accessible Process Water piping and valves. Record any leaks or other observations that may impact future operation of the system (e.g. significant corrosion, broken pipe hangers, etc.).

8. Stop pump #2 and place the hand switch for both pumps in "AUTO".

9. Report any problems via Work Order.

B. Process Water Manual Operated Valves

1. Place the hand switch for both Process Water pumps in the OFF position. Inspect and exercise Process Water valves J, K, L, M, Q, and P through their

entire cycle and return to position found. See attached sketches for valve identification.

2. With both pumps off and water in the sump, open SV-2 and when there is enough water in the TANK, start pump #1 at 50% speed. Inspect overall condition of Process Water valves J and L and check for leaks. Tighten or replace packing as necessary.

3. Stop pump # 1, close SV-2 and open SV-3 and when there is enough water in the TANK, start pump #2 at 50% speed. Inspect overall condition of Process Water valves K and M and check for leaks. Tighten or replace packing as necessary.

4. Stop pump #2 and place the hand switch for both pumps in "AUTO".

5. Inspect and exercise compressed air valves AP-2 through AP-8 through their entire cycles and return to positions found. Inspect overall condition of compressed air valves AP-2 through AP-8 and check for leaks. Tighten or replace seals as necessary.

6. Clean and preserve all the above valves and fasteners as required.

7. Report any problems via Work Order.

C. Filter/Moisture Separator

1. Open drain cock (turn counterclockwise) and drain off any bowl accumulation for filter H.

2. Inspect overall condition and report any problems via Work Order.

D. Work Order Submittal

1. Submit a Work Order for any Unacceptable conditions that exist and are beyond the scope of this work order.

If modification of this Job Package is required or recommended, highlight the areas of concern so Engineering and P&E can resolve/update work documents.
Check Here: _____

PWCS INSPECTION FORM

DRY DOCK # 6

The weather is currently:
____ Not raining ____ Light Rain ____ Medium Rain ____ Heavy rain

In the last 2 hours the weather:
____ Did not rain ____ Light Rain ____ Medium Rain ____ Heavy Rain

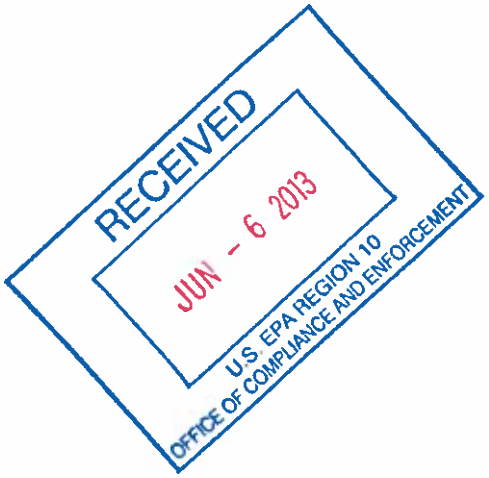
The flow into the process water sump is: _____ gpm

Pump #	Flow Meter (gpm)

Inspection observations / Work Orders generated:

USRO Signature _____ Date _____

Engineering Review Signature _____ Date _____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